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With compliments from
T. H. Lyle

NOTES ON THE ANCIENT POTTERY KILNS AT
SAWANKALOK, SIAM.

BY

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[WITH PLATE XXIV.]

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NOTES ON THE ANCIENT POTTERY KILNS AT SAWANKALOK, SIAM.

BY T. H. LYLE.

[WITH PLATE XXIV.]

THE results of a couple of days' investigation of the ancient kilns at Sawankalok may possibly be of interest, and will correct one or two erroneous statements made by me on a former occasion (*Man*, 1901, No. 41). So far as I can gather from traditions current in this neighbourhood, these kilns are assigned to the time of a powerful King of Sawankalok, or as the place was then called, "Sri Sachanalai." The name of this king was "Phra Roang." The fable concerning his birth and death bears a slight resemblance to the story of King Arthur in that he was the offspring of a being from the angel world, and an unaccountable disappearance whilst bathing forms the mystery of his return to his place of origin. No records exist as to the period of Phra Roang's reign; in fact, all Siamese history prior to 1350 A.D. is decidedly obscure, but, generally speaking, one might venture to attribute his reign to about the year 1000 of the Buddhist era (now 2443), say 1400 years ago, the fifth or sixth century A.D. Phra Roang is said to have travelled to China, and there to have married the daughter of the "King of China"; on returning to Siam with his wife, he was accompanied by "500" Chinese artificers, who evidently set up kilns in the neighbourhood of the capital, since "from that time the use of cups, bowls and dishes became customary in the country." The quotation is a translation of the only passage referring to these kilns contained in a manuscript history of this district, written during the last few months by an "oldest inhabitant" at the instance of the Siamese High Commissioner. The particulars of Phra Roang and the epoch of his reign are obtained from the same source.

Reference to the map will show Sawankalok to be situated on the Menam Yome, some two hundred miles due north of Bangkok. About twelve miles above modern Sawankalok (or as it is otherwise called, Wang Mai Khorn) the river makes a large bend north-east, then due west, and afterwards resumes a general northerly course. Within this bend, on the west bank of the river, are to be found some very fine ruins of Buddhist temples, and continuing to the west, one immediately comes upon the city walls of Sri Sachanalai. Within the boundaries of the old city are the remains of numerous temples and pagodas, hidden by large

"Sri Sachanalai" founded B.C. 95. Height of power 6th - 11th Centuries A.D. according to Gerini the manufacture of this ware was commenced about the close of the 11th century in imitation of the crackle ware of the Chinese Sung dynasty.

trees and completely overgrown with tropical vegetation and undergrowth. Many of these ruins have been examined, and, I believe, commented upon by Major Gerini of Bangkok, whose practical acquaintance with the antiquities of Siam and the ancient history of the Indo-Chinese races is perhaps unequalled.

So far as I could judge, there appear to be two distinct groups of kilns, both situated on the west bank of the river. The more northerly group or range of kilns commences some four miles above the old city. My former estimate of three or four hundred kilns, calculated upon statements made to me as to the extent of the range, is decidedly excessive. This portion of the river bank is covered with dense thickets of thorny bamboo, which render progress difficult and laborious, and speedily reduce one's garments to a very ragged condition. Vegetation, etc., limits one's view to a few yards only. My previous visit was made during the height of the dry season, when the undergrowth had been largely burnt off by jungle fires. A slightly more extended range of observation was possible under these circumstances, but owing to the extreme hardness of the ground, digging at that time was next to impossible. So far as I could observe, these kilns run parallel to the bank of the river in an extended line of more than a mile. The positions of some of the remaining kilns might point to the line having been a double one; in several instances, the action of the annual floods has eaten away the banks, and kilns have collapsed into the river. Indeed, the more perfect specimens of this ware have been picked up in the bed of the river after the water has sunk to summer level. The large specimen resembling a tea pot (Pl. XXIV, 2) and the large earthenware jar (Pl. XXIV, 1) were obtained in this manner. The number of kilns which have thus disappeared may not be inconsiderable, since it is possible to pick up chips and scraps of this ware on every sand bank and gravel bed in the river, even so far down as modern Sawankalok, a distance, allowing for the erratic course of the river, of at least twenty miles.

This northern range of kilns must have comprised not less than fifty of these structures. Of mounds and kilns, large and small, I counted thirty-two in various stages of ruin or of preservation, according as the ravages of time, vegetation and man had destroyed or spared them; whilst, in fourteen more instances, indications, consisting of broken brick, pipes and pottery, *débris* of the site of a kiln, were discernible. There were two or three types of kilns:—Single kilns, double kilns, in which the mouths or ovens point almost in the same direction, double kilns, with the ovens lying parallel but towards opposite points of the compass, and three kilns in close proximity, forming one mound.

It may be noted in passing that the very dilapidated remains or traces of three small Buddhist temples, placed at regular intervals along the line of kilns, show that the spiritual welfare of those residing in this neighbourhood was not neglected.

It struck me that the kilns are, on the whole, of a uniform shape, viz., a funnel to which is attached a "pear-shaped" oven resembling an oubliette lying on its side.

Seen from above, I can imagine the outline of a kiln to have been represented as in Fig. 1, *c*. In most instances, the funnel is entirely obliterated, and of the dome-shaped oven, the roof and walls, indicated by a curve, no longer remain. Of

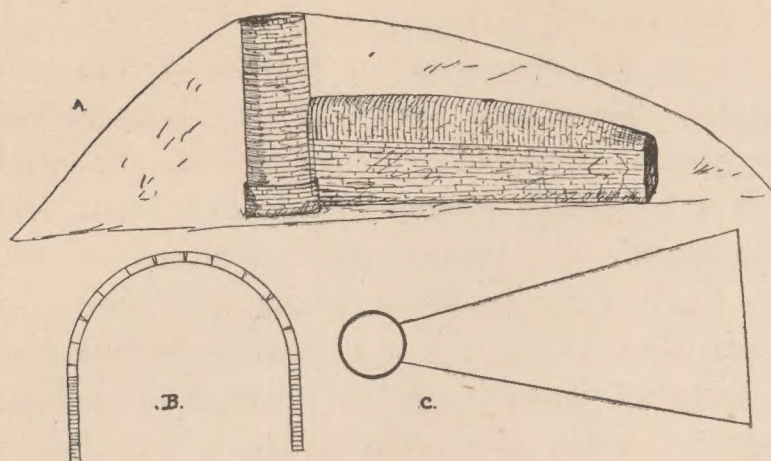


FIG. 1.—Diagram of Mound.

a. Elevation. *b.* Section through arch. *c.* Plan.

the part thus indicated, it would appear either that the roof had fallen in, half-burying, half-revealing the contents of the kiln, or that this portion had been broken into and the contents thrown out and scattered. The amount of broken ware, consisting for the most part of the bases of dishes, and of broken pipes or stands, surrounding and forming some

of these mounds, is amazing. Of some of the most common patterns to be found on these remnants, I made rough copies and enclose them herewith. All these patterns were ~~in very slight relief~~ ^{incised}. Some dark colouring matter has also been used as a means of ornamentation. Judging from the nature of the *débris* to be found in the vicinity of each kiln, the northern half of this range had been devoted to the higher branches of manufacture—since the fragments consist entirely of celadon ware, and bear traces of artistic skill in their patterns, whilst in the southern kilns, the dimensions of which are apparently smaller than those in the northern half, earthenware has been the chief product.

Mound No. 1¹ is one of the most compact, and perhaps the highest in this range. There is little or no pottery *débris* on and around this mound. In vertical height, it arises above the surrounding ground about 15 feet at its highest point. Traces of a funnel are not visible, though the outline of the walls of the oven, of a U shape, extend from the highest point in a sloping direction to the ground. This kiln lies, roughly speaking, north and south. Its banks are fairly steep on the north, west, and east sides, forming an angle of perhaps 120° with the ground. On these three sides, measurements from the base to the highest point give 26 feet, the slope in the southern direction, owing doubtless to the collapse of the oven roof, is longer, and more gradual, measuring 30 feet at 145° approximately. Considering the general compactness of this mound, and the absence of pottery ware amongst the *débris* of which it is composed, it is quite possible that this mound is practically untampered with, and that the fact of the walls of the oven being exposed is mainly due to the roof having fallen in of its own accord. White ants, decaying vegetation, and many centuries of changing seasons have perhaps combined to fill up any space or

¹ Mr. Lyle's plans of the mounds were not adapted for reproduction, and a diagrammatic view is given instead (Fig. 1).

hollow caused by the collapse. My experience, however, in the case of an identical, and seemingly untouched, mound, was not encouraging, for on penetrating to a depth of about 6 feet, earth, broken pipes or stands, and brick rubble were the only products. Perseverance might possibly have been rewarded, but time did not admit of further investigation.

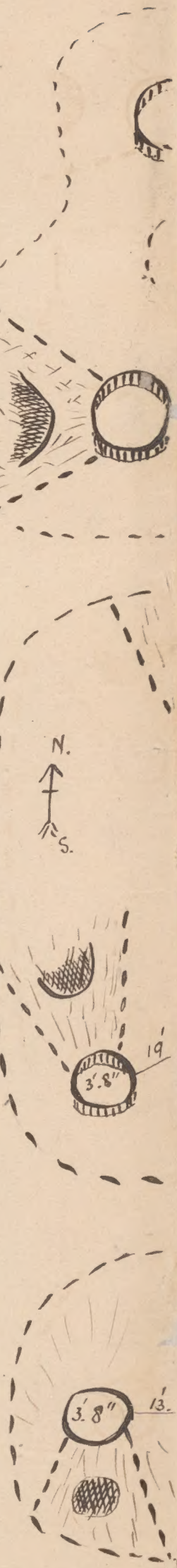
Mound No. 2 is one in which the funnel and a portion of the roof and sides of the kiln are most distinct. These kilns have long since been robbed of their contents, and from the general appearance of the mound, one could imagine that the place had been a "dumping ground" for broken bricks and pottery. In the vicinity of the funnel, the mound rises to about 14 feet. Traces of a second oven exist, 40–50 feet distant in a southerly direction. Whether these two kilns have been distinct or not, it is difficult to say; at the present moment, they form practically one mound of *débris*. The visible portion of the funnel, measuring 6 feet 3 inches, inside diameter, is built a single brick in thickness, and the average measurement of these bricks, from outside to inside, is 3 inches. On the other hand, the bricks, of which the dome of this kiln is formed, measure 5 inches in depth, by, approximately, 2 inches by 7 inches.

The interior face of the bricks of the dome and sides is covered with a dark green and black slag-like glaze, apparently similar, but of inferior quality to that used on the porcelain ware itself. My ignorance on these subjects does not enable me to hazard any suggestion as to whether this interior glazing has been made purposely, or is merely the result of the action of heat upon the inside of the kiln.

It may be not unimportant to remark that, in the case of every dome I examined, the bricks did not appear to have been specially made for the purpose of building an arch or dome. They were symmetrical and rectangular. The places of "key stones" in the arch, were supplied by pieces of brick, chipped to the necessary wedge-shape, and inserted as required.

The mound No. 3 is curious, in that it exhibits three funnels—two of them identical in diameter (interior), 3 feet 8 inches, the third having an interior diameter of 2 feet 10 inches only. The fact that the distance, 37 feet, from the small funnel, No. 1, to its nearest neighbour, No. 2, is practically exactly double the distance, 19 feet, between funnels Nos. 2 and 3, may not be without its significance. The general height of this mound above present ground level is 3 to 4 feet only.

The kiln in mound No. 4 is by no means the least remarkable of these structures. In this instance, we have one compact mound containing two central funnels, 13 feet apart, and each situated 12 feet from the nearest edge of the mound respectively. The average diameter of the mound thus amounts to 37 feet. Moreover, the plane of the two kilns is parallel, but the oven portions have been built in diametrically opposite directions. The average height of this mound is 7 or 8 feet only; and the interior diameter of both the funnels is 3 feet 8 inches. In the roof of the southern dome, a hole about 6 feet in diameter has been broken, but although the kiln has no doubt contained earthenware, there is little or no



No. 2.

débris in the vicinity to show that a search in this kiln has been productive. I entered the kiln by this hole, and found a cavity about 4 feet in height, with a sloping floor of earth and *débris*. The interior of the kiln is, of course, filled in with earth so far as one can see, in fact, the portion that one sees is, as it were, the top part of the "egg" only. It struck me that if one could succeed in unearthing the whole, one would find that the true floor of the kiln lies a foot or two below the present level of the ground outside.

Considering the situation of these kilns on the banks of the river, and the fact that the Meyome is subject to extremely high rises during the tropical rainy season, it is very possible that centuries of floods may have resulted in raising the former level of the surrounding country by a foot or two of alluvial deposit. It was here that I was enabled to gain a clearer idea of the architectural construction of these kilns. It was noticeable that, for the first few feet, the walls of the oven were apparently perpendicular, but converged, and, at the same time, slanted upwards towards the funnel.

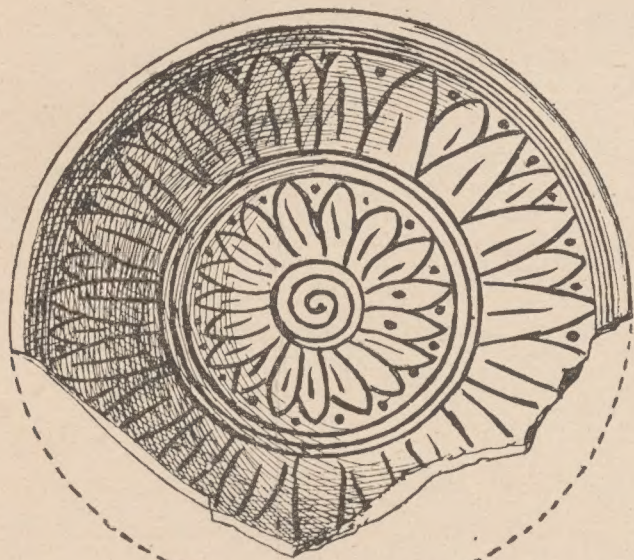


FIG. 2.—*Bowl*
Plate from Sawankalok.

The accompanying diagram, Fig. 1, may render my meaning more intelligible. The size of the bricks of which this oven is composed is $6\frac{1}{2}$ inches by $7\frac{1}{2}$ inches by 2 inches. The walls having been raised perpendicularly to the desired height, by laying the bricks flat, 2 inches face inside, and width $6\frac{1}{2}$ inches, the dome had been built by erecting the bricks at right angles (*sic*) to these layers, and the curve obtained by inserting, whenever necessary, a wedge of brick chipped to the required shape. A section of the walls and dome, showing the plan of the bricks would, therefore, offer an appearance of Fig. 1b.

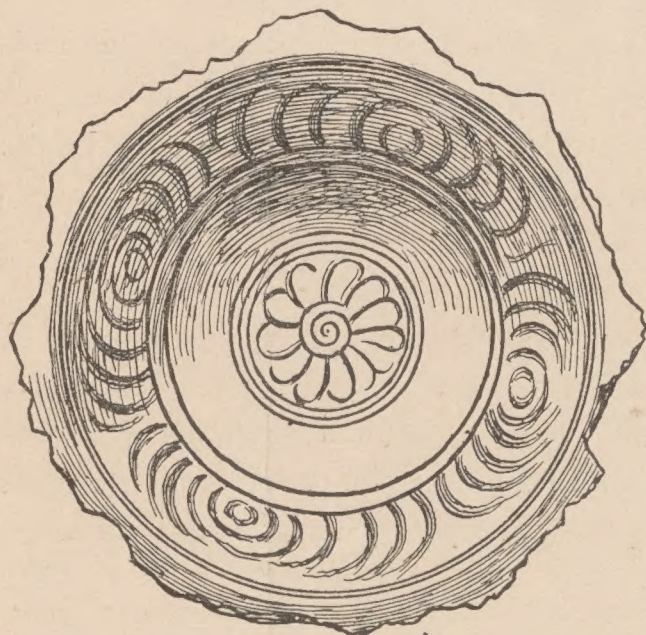
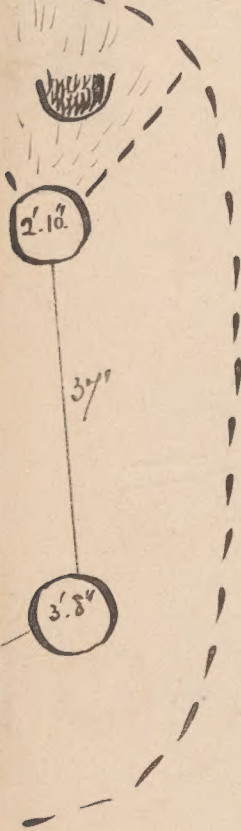


FIG. 3.—*Bowl*
Plate from Sawankalok.

I have little doubt that all the specimens, both glazed and earthenware, forwarded by me to the British Museum, are the products of this

northern range of kilns. Conspicuous amongst the *débris* are remains of the pipes or stands upon which the bowls, etc., have evidently been placed when in process

No. 3.



No. 4.



of burning in the kilns (Plate XXIV, 3). These stands, it will be observed, vary in length from a couple of inches to two feet.

Concerning the southern kilns, about the group situated about one mile above the old city, I can offer but little information. They are even more hidden by vegetation, and enveloped in more obstinate thorny bamboo than those three miles above. I am under the impression that they are very little disturbed, and may not exceed twenty or thirty in number, but judging from the glimpse I managed to catch of one or two of the mounds, I am of opinion that they are in a less satisfactory state of preservation. It is quite possible also that ware of a slightly different quality was made here. A few chips of porcelain like that of the northern range are scattered about; but from one kiln there have been unearthed remnants of porcelain figures originally 3 or 4 feet high, representing those human beings of ferocious countenance, or "Giants" (Siamese "yak"), so much affected by the Chinese in the decoration and protection of their temples. Amongst the specimens will be seen the hand, which I picked up, of one of these creatures (Pl. XXIV, 1). This may be found useful for purposes of comparison. I noticed here also fragments of what appeared to be a heavy flooring tile, about 1 inch thick, of reddish earthenware, with a white glazed surface.

In conclusion, I may remark that any investigations on scientific lines would have to be carried on under great disadvantages. There are the climatic obstacles of the hot and the wet season; in the former, the ground is baked so hard as to render digging most difficult, whilst the rapid growth of vegetation, no less than the certainty of constant fever, are to be seriously contemplated in the latter. The greatest crux would be, perhaps, the question of labour, both as to quantity and quality. The only digging tool of which the provincial Siamese has any conception is an iron "spade" or "mattock," barely differing in size and appearance from an ordinary table-spoon. European spades, pick-axes, and excavating tools would be as unsuitable to his strength as beyond his comprehension to manipulate. It would be well that a preliminary survey by one competent to judge of the resources and relative importance of these kilns should precede any suggestion of expenditure upon systematic excavation.

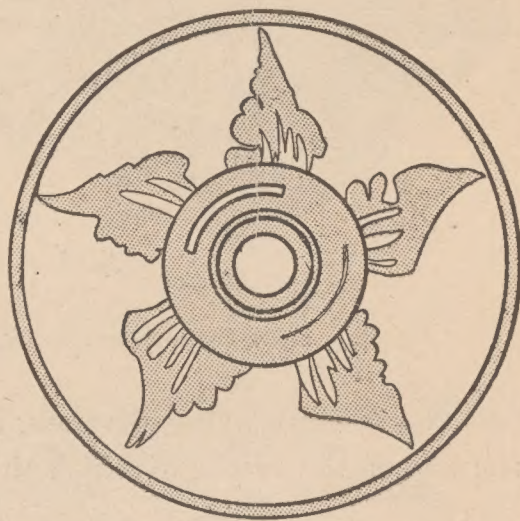


FIG. 4.—Pattern from Centre of Plate from Sawankalok.



FIG. 1.



FIG. 2.



FIG. 3.

THE ANCIENT POTTERY KILNS AT SAWANKALOK, SIAM.

NOTE ON MR. LYLE'S PAPER BY C. H. READ, F.S.A.

THE discoveries made by Mr. Lyle, and described in the foregoing paper, are of very great interest in the history of Oriental ceramics. The presence of vessels, or fragments, of celadon ware in widely separated parts of the East, extending even to the interior of Borneo, has long been a puzzle to students of the subject. The existence of ancient specimens of Chinese celadon, and the Chinese traditions as to its antiquity, have led to the assumption that the whole of the production of ancient times was to be attributed to China. This very natural error we are now able to correct, and the extensive series of specimens, chiefly "wasters," which Mr. Lyle has been good enough to send to the British Museum, will serve as ample proof that in Siam, at least, there was in ancient times a very considerable manufacture of celadon ware, which it is, in many cases, hard to distinguish from that made in China. The evidence is of the most complete character. Not only are vast quantities of refuse from the potteries scattered over the country, but the actual furnaces and the tubes, used to support the vases in the kilns, have all been found, and great credit is due to Mr. Lyle for the thorough and convincing character of his investigations. It is not easy, or even possible, in figuring specimens of porcelain, to show the characters with sufficient clearness, and recourse must be had to description. The classes of ware that seem to have been produced at this ancient Siamese pottery, embrace a considerable range. Among the fragments have been found small vases and bottles of a fine pottery covered with mottled glaze, the shapes often elegant, and sometimes highly finished, recalling the fine tea-jars made at Takatori in the province of Chikuzen in Japan. There are even coarser unglazed wares, which again resemble some of the dolmen pottery in the British Museum, discovered in Japan by Mr. W. Gowland. These were made in the southern group of kilns. Then amongst the celadon itself, the quality varies from a coarse stoneware to a fine white porcelain, which would be translucent had it been thinner, and the quality of the glaze, and the success with which it has been applied, equally varies to as great a degree, but reaching, in the finest pieces, a high standard of excellence. It is thus certain that the Siamese potters were able to make as fine a ware, and as highly finished, as their Chinese neighbours.

There is unfortunately no means of fixing a precise date at which this pottery flourished, but, for what it may be worth, it may be well to note that the incised decoration of the Siamese pieces more nearly resembles that of the Chinese of the thirteenth or fourteenth centuries than any later examples. The enduring character of this remarkable ware, whether made in China or elsewhere, has led, on this ground alone, to its being imported and valued in almost every part of the Eastern Hemisphere. In England, one of the most remarkable pieces is a bowl given by Archbishop Warham to New College, Oxford. The Archbishop died in 1532. This piece has the incised decoration under the glaze, which is commonly found in examples of about this period. Celadon ware was extensively used in India, and

great quantities of fragments are found on ruined sites on that part of the continent. In the Persian Gulf, throughout the whole of the Malay Peninsula, and over the whole of the East, there seems to be a superstitious value attached to it, owing no doubt to the mediæval superstition that the ware had the power of detecting poison when put into it. There can be no doubt, I think, that the origin of the colour was a desire to make imitations of jade vessels in this material, a greenish gray being the colour most commonly found in Chinese jade.

An exhaustive account of the occurrence of these wares in Malaysia has been published by Dr. A. B. Meyer (*Alterthümer aus dem Ostindischen Archipel*, etc., Leipzig, 1884), and a very learned and useful article by Professor Karabacek appears in the *Oesterreichische Monatsschrift für den Orient*, December, 1884, where Dr. Meyer's work is reviewed, and the general question of Muslim ceramics is discussed. He quotes an Arab writer of the seventeenth century as stating that "in his time costly and beautiful celadon bowls and vases were made at Martaban, and exported to all parts. These pieces are not so neatly made, and not ornamented in the same way as the Chinese." This remarkable statement confirms the common Oriental name for this ware of "Martabani," which, like the terms Gombroom ware and Nankin china, would now seem to indicate only the port from which the goods were sent. There can be no doubt that a large proportion, at any rate, of the celadon which was exported from Martaban must have been made at the Siamese kilns now in question. In addition to this evidence, the forms of the pieces found by Mr. Lyle are those which are commonly seen in the Malay Archipelago, such as the small spherical vase with two small looped handles, apparently a characteristic form, and another representing the cover of a cremation urn such as is used in Siam at this day, the form being a depressed copy of the series of discs used to ornament the summit of the Siamese dagoba.

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